

US EPA ARCHIVE DOCUMENT

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FACT SHEET
Authorization to Discharge under the
National Pollutant Discharge Elimination System for the
Moenkopi Utility Authority WWTP
NPDES Permit No. AZ0024619

Applicant Address: Moenkopi Utility Authority (“MUA”)
P.O. Box 1229
Tuba City, AZ 86045

Applicant Contact: Samuel Shingoitewa, Jr.
General Manager, MUA
(928) 283-8056

Facility Address: MUA Wastewater Treatment Facility
Mile Post 321, Highway 160
Tuba City, AZ 86045

I. Summary

Moenkopi Developers Corporation (“MDC”) was issued a National Pollutant Discharge Elimination System (“NPDES”) Permit (No. AZ0024619) on September 27, 2006, for the Hopi Indian Nation’s Upper Village of Moenkopi (UVM) wastewater treatment facility (“WWTP”), pursuant to EPA regulations set forth in Title 40, Code of Federal Regulations (“CFR”) Part 122.21. The permit became effective on October 1, 2006, through midnight, September 30, 2011. In May 2011, EPA was notified of plant ownership change from MDC to Moenkopi Utility Authority (“MUA”) effective February 10, 2011. As formal owner and operator of the plant, MUA agrees to assume all responsibility, coverage, and liability of the permit as of the effective date of the ownership transfer. MUA applied to U.S. EPA Region 9 for reissuance of the NPDES permit on May 18, 2011. This fact sheet is based on information provided by the applicant through its application and discharge data submittals, along with the appropriate laws and regulations.

Pursuant to Section 402 of the Clean Water Act (“CWA”), the U.S. EPA is proposing issuance of the NPDES permit renewal to MUA (“permittee”) for the discharge of treated domestic wastewater to receiving waters named Moenkopi Wash, a tributary to the Little Colorado River, a water of the United States.

II. Description of Facility

The MUA WWTP is a publicly owned treatment works (POTW) located off of Highway 160, within the Moenkopi District of the Hopi Indian Reservation near Tuba City, Coconino County, Arizona. The facility serves a population of 900 to 1,850 from

Upper Village of Moenkopi and Lower Moenkopi, receiving only domestic sewage with a design flow capacity of 0.185 million gallons per day (MGD).

The MUA WWTP was constructed with financial aid from the U.S. Department of Housing and Urban Development (HUD) and the U.S. Department of Agriculture (USDA). Plant construction was completed around 2009 and discharge began during October 2009.

On June 1, 2011, EPA was informed by Governor William Charley of Upper Moenkopi that Navajo Tribal Utility Authority (“NTUA”) has inquired about the option of using the MUA plant to treat the wastewater from NTUA's customers in Tuba City. The reason given to MUA is that NTUA is having problems with its own NPDES permit. NTUA is exploring options of setting up an agreement with MUA to have the MUA plant treat the wastewater from NTUA's Tuba City customers. Governor Charley indicated that NTUA is willing to help with the costs to upgrade the existing treatment plant at Upper Moenkopi (basically, increasing the capacity of the existing plant so it will be able to handle a load of about 0.5 MGD). To EPA's knowledge, no agreement between the two tribal utility authorities nor any connection of sewage collection conveyance systems has been established to date.

The MUA WWTP provides secondary treatment, capable of achieving 96% removal efficiencies for biochemical oxygen demand (BOD₅) and total suspended solids (TSS). Treatment consists of raw screening and vortex grit removal, two (2) parallel activated sludge sequencing batch reactor (SBR) basins, an aerobic sludge digester, an effluent flow equalization basin, two (2) tertiary sand filtration units and ultraviolet (UV) disinfection. Final treated effluent will be kept in an effluent storage tank where it can either be piped to local farmers in the Valley for irrigation or off-loaded to tanker trucks to be used for dust control in the Village, with overflow to be discharged from Outfall No. 001 into Moenkopi Wash, a tributary to the Little Colorado River. Any sampling and monitoring under the proposed permit shall be performed at Outfall No. 001.

III. Basis of Proposed Permit Requirements

A. Applicable Technology-Based Effluent Limitations

Section 301 of the CWA established a required performance level, referred to as “secondary treatment,” that all POTWs were required to meet by July 1, 1977. Federal secondary treatment effluent standards for POTWs are contained in Section 301(b)(1)(B) of the CWA. Implementing regulations for Section 301(b)(1)(B) are found at 40 CFR Part 133. The CWA requires POTWs to meet performance-based requirements based on available wastewater treatment technology. These technology-based effluent limits apply to all municipal wastewater treatment plants, and identify the minimum level of effluent quality attainable by secondary treatment in terms of BOD₅ and TSS. The requirements contained in the draft permit are necessary to prevent violations of applicable treatment standards.

B. Hopi Water Quality Standards

In accordance with 40 CFR 122.44(d), the need for discharge limitations for all pollutants that may impact applicable water quality criteria and water quality standards must be evaluated. As part of this evaluation, discharge limitations are based on application of the water quality standards.

EPA approved the 1997 Hopi Tribe water quality standards (“WQS”) on July 8, 2008. The Hopi revised WQS in November 2010 which was adopted by the Hopi Tribal Council on March 21, 2011, and approved by EPA on August 24, 2011. These 2010 revised WQS will be used on a best professional judgment (“BPJ”) basis for purposes of developing water quality-based effluent limitations. The requirements contained in the proposed permit are necessary to prevent violations of applicable water quality standards, as provided in Table A-1 of the 2010 Hopi WQS.

IV. Determination of Effluent Limitations, Monitoring, and Reporting Requirements

A. Federal Secondary Treatment Effluent Discharge Limitations

The proposed permit contains discharge limitations for biochemical oxygen demand (BOD₅), total suspended solids (TSS) and priority toxic pollutants. For both BOD₅ and TSS, the arithmetic means of values, by weight, for effluent samples collected in a period of 30 consecutive calendar days cannot exceed 15 percent of the arithmetic mean of values, by weight, for influent samples collected at approximately the same times during the same period. These limits are required as shown in Table 1.

Table 1 – Conventional and Toxic Pollutants

Discharge Parameter	Units	Average Monthly	Average Weekly	Maximum Daily	Monitoring Frequency
Flow ¹	GPD	-- ²	n/a	-- ²	Instantaneous
BOD ₅ ³	mg/l	30	45	n/a	Monthly
	kg/day	21	31	n/a	
TSS ³	mg/l	30	45	n/a	Monthly
	kg/day	21	31	n/a	
Priority Pollutants ⁴	µg/l	-- ²	n/a	-- ²	Once/1 st Quarter during Year 5

NOTES:

1. No flow limit is set at this time but influent and effluent flows must be monitored and reported. The monitoring frequency is once/month.
2. Monitoring and reporting required. No limitation is set at this time.

3. Under 40 CFR Section 133.102(a), the discharge limits for BOD₅ and TSS shall not exceed a monthly average of 30 mg/l and a weekly average of 45 mg/l. The mass limits are calculated based upon the 0.185 MGD design flow.
4. Priority Pollutants: In the first year of the permit, the permittee shall monitor for the full list of priority pollutants in the Code of Federal Register (CFR) at 40 CFR Part 423, Appendix A. No limit is set at this time. Should the results reveal levels below the Hopi's Water Quality Standards and EPA's National Water Quality Criteria for priority pollutants, monitoring will no longer be required for the remainder of the permit cycle.

B. Water Quality Based Effluent Limitations (“WQBELs”)

Water quality-based effluent limitations, or WQBELS, are required in NPDES permits when the permitting authority determines that a discharge causes, has the reasonable potential to cause, or contributes to an excursion above any water quality standard. (40 CFR 122.44(d)(1)).

When determining whether an effluent discharge causes, has the reasonable potential to cause, or contributes to an excursion above narrative or numeric criteria, the permitting authority shall use procedures which account for existing controls on point and non-point sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity) and where appropriate, the dilution of the effluent in the receiving water [40 CFR 122.44 (d)(1)(ii)].

EPA evaluated the reasonable potential to discharge toxic pollutants according to guidance provided in the *Technical Support Document for Water Quality-Based Toxics Control* (TSD) (Office of Water Enforcement and Permits, U.S. EPA, March 1991) and the *U.S. EPA NPDES Permit Writers Manual* (Office of Water, U.S. EPA, December 1996). These factors include:

1. Applicable standards, designated uses and impairments of receiving water.
2. Dilution in the receiving water
3. Type of industry
4. History of compliance problems and toxic impacts
5. Existing data on toxic pollutants - Reasonable Potential analysis

1. **Applicable standards, designated uses and impairments of receiving water**

The designated uses of the receiving waters as defined by the 2010 Hopi Tribe water quality standards for Moenkopi Wash (a tributary to the Little Colorado River) are aquatic and wildlife (warm water habitat) A&W_w, full body contact (FBC), partial body contact (PBC), agricultural livestock watering (AgL), agricultural irrigation (AgI) and groundwater recharge (GWR). (Page 15)

2. Dilution in the receiving water

Discharge from Outfall 001 is to Moenkopi Wash. This wash may have no natural flow during certain times of the year. Therefore, no dilution of the effluent has been considered in the development of water quality based effluent limits applicable to the discharge.

3. Type of industry

Typical pollutants of concern in untreated and treated domestic wastewater include ammonia, nitrate, oxygen demand, pathogens, temperature, pH, oil and grease, and solids. Chlorine and turbidity may also be of concern due to treatment plant operations. UV is used for effluent disinfection and chlorine is no longer a concern.

4. History of compliance problems and toxic impacts

Review of December 2007 to March 2011 DMR data showed sporadic non-reporting due to lack of samples collected during that month. In May 2011, the October-December 2010 DMRs were resubmitted with official signature of the MUA interim general manager, Marilyn Lomahaftewa as principal executive officer or authorized agent of MUA.

5. Existing data on toxic pollutants

As part of the application for permit renewal, the permittee provided data from an analysis of the facility's treated wastewater discharge, shown in Table 2. Some of the parameters that were reported in the application were not limited in the previous permit (including total dissolved solids, and priority pollutants).

Table 2 - Toxic Discharge Data

Parameter	Units	Discharge Data ^{(1),(2)}	
		Maximum Daily Discharge	Average Daily Discharge
Cyanide	µg/l	<10	--
Arsenic	µg/l	<1.7	--
Nickel	µg/l	<20	--
Copper	µg/l	< 10	--
Zinc	µg/l	40	--
Acrolein	µg/l	<50	--
Acrylonitrile	µg/l	<10	--
Anthracene	µg/l	<5	--
Phenol	µg/l	<5	--

(1) Based on permittee's NPDES renewal application and supplemental data.

(2) Data submitted on all other priority pollutants were reported as below the detection limits used for analysis.

C. Rationale for Water Quality Based Effluent Limitations (WQBELs)

EPA has selected the most stringent of applicable technology-based standards or WQBELs to be placed in the permit, based on the rationale as described below.

Table 3 – Water Quality Based Effluent Limitations

Effluent Parameter	Units	Average Monthly	Average Weekly	Maximum Daily	Monitoring Frequency	2010 Hopi Water Quality Standards
<i>E. coli</i>	CFU/100 ml	130	--	580	Weekly	Section 4.102 and Table A-1 for FBC, PBC, GWR
Dissolved Oxygen (DO)	mg/l	--	--	≥ 5.0	Monthly	Section 4.102 and Table A-1 for A&W _w
Total Ammonia ¹ (as N)	mg/l	-- ¹	--	-- ¹	Monthly	Section 4.102 and Table A-1 for A&W _w
pH ²	std unit	between 6.5 to 9.0			Monthly	Section 4.102 and Table A-1 for FBC, PBC, AgL
Temperature ²	deg °C	--	--	≤32.2°C (or 90°F)	Monthly	Section 4.102 and Table A-1 for A&W _w
Turbidity	NTU ³	--	--	25	Monthly	Section 4.102 and Table A-1 for FBC, GWR
Whole Effluent Toxicity Testing	TUc	--	--	--	Semiannual (January, July)	EPA Region 9's policy

FOOTNOTES:

1. Total Ammonia (as N) - The previous 2006 permit required quarterly monitoring for un-ionized NH₃-N. The 2010 revised WQS for total ammonia (as N) are included in the permit attachment A. Consistent with EPA's 2004 criteria guidance, the proposed permit establishes monitoring and reporting requirements for total ammonia. The criteria for ammonia are pH and temperature dependent, and pH and temperature field measurements must be taken at the same time and location as the water samples destined for the laboratory analysis of ammonia. Composite samples will be required for total ammonia and the monitoring frequency in this permit has been changed to monthly to allow for proper characterization of the plant's effluent.
2. pH and Temperature - In order to support the Hopi's established ammonia standards, which vary with the pH and temperature of the effluent, pH and temperature monitoring is to be performed concurrently with ammonia monitoring.
3. NTU - Nephelometric Turbidity Units
4. Whole Effluent Toxicity (WET) - It is U.S. EPA Region 9's policy that all continuous dischargers be required to perform WET testing. WET testing is intended to demonstrate that there are no unexpected toxic components of the discharge escaping to the receiving water undetected, and to prompt a response if they are present. The proposed permit therefore requires chronic toxicity testing to be conducted semiannually, in January and July, using a 24-hour composite sample of

the treated effluent for fathead minnow (*Pimephales promela*), daphnid (*Ceriodaphnia dubia*) and an alga species (*Selenastrum capricornutum*). This is a new requirement for this permit.

5. Omission of Total Residual Chlorine limit. Hypochlorite disinfection was replaced with UV disinfection and therefore, chlorine is no longer a concern in the effluent. No TRC monitoring and limit are required at this time.

D. Anti-Backsliding

Section 402(o) of the CWA prohibits the renewal or reissuance of an NPDES permit that contains effluent limits less stringent than those established in the previous permit, except as provided in the statute. The proposed permit does not establish any effluent limits less stringent than those in the previous permit and does not allow backsliding.

E. Antidegradation Policy

EPA's antidegradation policy at 40 CFR 131.12 and the Hopi Water Quality Standards require that existing water uses and the level of water quality necessary to protect the existing uses be maintained.

As described in this document, the permit establishes effluent limits and monitoring requirements to ensure that all applicable water quality standards are met. The permit does not include a mixing zone; therefore, these limits will apply at the end of pipe without consideration of dilution in the receiving water.

Therefore, due to the low levels of toxic pollutants present in the effluent, high level of treatment being obtained, and water quality based effluent limitations, it is not expected that the discharge will adversely affect receiving water bodies.

V. Reporting

The proposed permit requires discharge data obtained during the previous three months to be summarized on monthly DMR forms and reported quarterly. If there is no discharge for the month, report "C" in the No Discharge box on the DMR form for that month. These reports are due January 28, April 28, July 28, and October 28 of each year. Signed copies of these, and all other reports required herein, shall be submitted to the U.S. EPA.

VI. General Standards

The proposed permit sets general standards that are narrative water quality standards contained in the Hopi Water Quality Standards. These general standards are set forth in Section B. General Discharge Specifications of the permit.

VII. Permit Reopeners

- A. At this time, there is no reasonable potential to establish any other water quality-based limits. Should any monitoring indicate that the discharge cause, has the reasonable potential to cause, or contributes to excursion above a water quality criterion, the permit may be reopened for the imposition of water quality-based limits and/or whole effluent toxicity limits. The proposed permit may be modified, in accordance with 40 CFR 122 and 124, to include appropriate conditions or effluent limits, monitoring, or other conditions to implement new regulations, including U.S. EPA-approved new Tribal water quality standards; or to address new information indicating the presence of effluent toxicity or the reasonable potential for the discharge to cause or contribute to exceedances of water quality standards.
- B. In accordance with 40 CFR 122.44(c), EPA may promptly modify or revoke and reissue any permit issued to a treatment works treating domestic sewage (including “sludge only facilities”) to incorporate any applicable standard for sewage sludge use or disposal promulgated under section 405(d) of the CWA, if the standard for sewage sludge use or disposal is more stringent than any requirements for sludge use or disposal in the permit, or controls a pollutant or practice not limited in the permit.

VIII. Biosolids Requirements

The permittee shall submit a report 60 days prior to disposal of biosolids. The report shall discuss the quantity of biosolids produced, the treatment applied to biosolids including process parameters, disposal methods, and, if land applied, analyses for Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Molybdenum, Nickel, Zinc, and Selenium, and organic-N, ammonium-N, and nitrate-N, all expressed in mg/kg biosolids on a 100% dry weight basis. The permittee shall comply with all standards for biosolids use and disposal at Section 405(d) of the CWA, and 40 CFR Parts 257, 258 and 503.

IX. Threatened and Endangered Species and Critical Habitat

A. Background:

Section 7 of the Endangered Species Act (ESA) of 1973 requires Federal agencies such as EPA to ensure, in consultation with the U.S. Fish and Wildlife Service (FWS), that any actions authorized, funded or carried out by the Agency are not likely to jeopardize the continued existence of any Federally-listed endangered (E) or threatened (T) species or adversely modify or destroy critical habitat of such species.

Since the issuance of NPDES permits by EPA is a Federal action, consideration of a permitted discharge and its effect on any federally-listed

species is appropriate. The proposed NPDES permit authorizes the discharge of treated domestic wastewater into Moenkopi Wash, a tributary to the Little Colorado River, a water of the United States.

In June 2011, EPA sent a formal request for information to the FWS as well as to the adjacent Navajo Nation's Department of Fish & Wildlife Natural Heritage Program (NHP) database. EPA received a response from the FWS dated July 19, 2011, directing EPA to a link of the agency's database. A review of the FWS database for Coconino County Species lists yields a broad list of species of concern as follows:

Names (common and scientific)	Status
Apache (Arizona) trout (<i>Oncorhynchus gilae apache</i>)	T
Black-footed ferret (<i>Mustela nigripes</i>)	E
California condor (<i>Gymnogyps californianus</i>)	E
Chiricahua leopard frog (<i>Lithobates [Rana] chiricahuensis</i>)	T
Humpback chub (<i>Gila cypha</i>)	E
Little Colorado spinedace (<i>Lepidomeda vittata</i>)	T
Mexican spotted owl (<i>Strix occidentalis lucida</i>)	T
Razorback sucker (<i>Xyrauchen texanus</i>)	E
Southwestern willow flycatcher (<i>Empidonax traillii extimus</i>)	E

Previously, a biological evaluation was prepared by the Hopi Tribe's Department of Natural Resources – Wildlife & Ecosystems Management Program for the construction of Moenkopi facility in September 2004 and found that no federally listed E or T species for Coconino County, Arizona were present nor was there critical habitat for such species.

B. EPA's Finding:

The proposed NPDES permit issuance authorizes the discharge of treated wastewater in conformance with the federal secondary treatment regulations and the Hopi Water Quality standards. These standards are applied in the permit both as numeric and narrative limits. The standards are designed to protect aquatic species, including threatened and endangered species, and any discharge in compliance with these standards should not adversely impact any threatened and endangered species.

EPA believes that effluent released in compliance with this permit will have no effect on any federally-listed threatened or endangered species or its critical habitat that may be present in the vicinity of the discharge. The treatment facility has been in existence for some time, and no new construction or modifications will be made to it due to the proposed NPDES permit. Therefore, no requirements specific to the protection of endangered species are proposed in

the permit. EPA may decide that changes to the permit may be warranted based on receipt of new information. A re-opener clause has been included should new information become available to indicate that the requirements of the permit need to be changed.

X. Administrative Information -- Public Notice, Public Comments, and Requests for Public Hearings

In accordance with 40 CFR 124.10, public notice shall be given by the U.S. EPA Director that a draft NPDES permit has been prepared by mailing a copy of the notice to the permit applicant and other Federal and State agencies, and through publication of a notice in a daily or weekly newspaper within the area affected by the facility. The public notice shall allow at least 30 days for public comment on the draft permit.

In accordance with 40 CFR 124.11 and 12, during the public comment period, any interested person may submit written comments on the draft permit, and may request a public hearing if no hearing has already been scheduled. A request for public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. In accordance with 40 CFR 124.13, all persons must raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position within thirty (30) days from the date of the public notice. Comments may be received either in person or mailed to:

U.S. Environmental Protection Agency, Region 9
NPDES Permits Office (WTR-5)
Attn: Linh Tran
75 Hawthorne Street
San Francisco, CA 94105
Telephone: (415) 972-3511

Interested persons may obtain further information, including copies of the draft permit, fact sheet/statement of basis, and the permit application, by contacting Linh Tran (WTR-5) at the U.S. EPA address, above. Copies of the administrative record (other than those which U.S. EPA maintains as confidential) are available for public inspection between 8:00 a.m. and 4:30 p.m., Monday through Friday (excluding federal holidays).

In accordance with 40 CFR 124.12, the U.S. EPA Director shall hold a public hearing when, on the basis of requests, a significant degree of public interest in the draft permit exists. The Director may also hold a public hearing when, for instance, such a hearing might clarify one or more issues involved in the permit decision. Public notice of such hearing shall be given as specified in 40 CFR 124.10.